



Welcome

Department of Mathematics
University of Rajshahi

Today, We are going to create a **rectangle** using asterisks in **C**

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About the project

The project involves creating a program in **C** to generate a rectangle shape using asterisks based on user input for width and height.

02

Major Requirement

- **C** Programing Language
- User Interaction
- Rectangle Generation
- Output Display

03


Project goals

The project's primary goal is to develop a program that allows users to define the dimensions of a rectangle and generates a visual representation of the rectangle using asterisks.





INTRODUCTION of C



C is a powerful and widely-used programming language known for its **efficiency** and **versatility**. It is a procedural language with a **simple syntax**, offering **low-level memory** access and portability across different platforms.





01

What is For Loop in C

c

Copy code

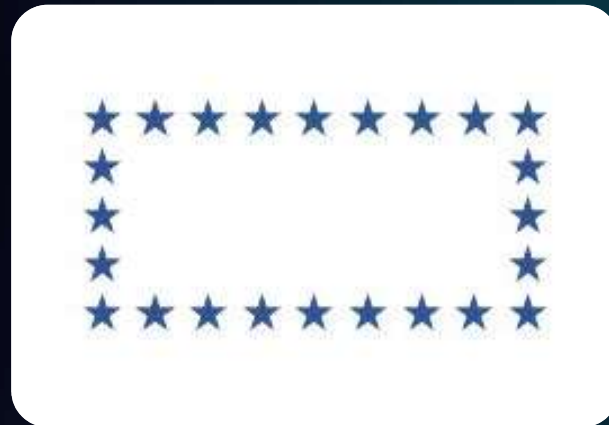
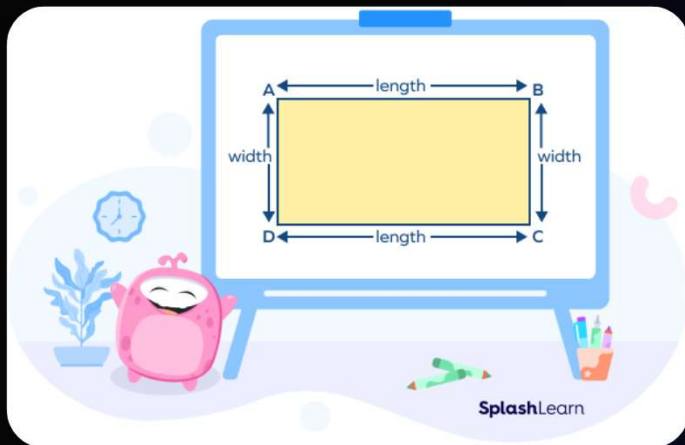
```
for (initialization; condition; increment/decrement) {  
    // Code to be executed repeatedly  
}
```



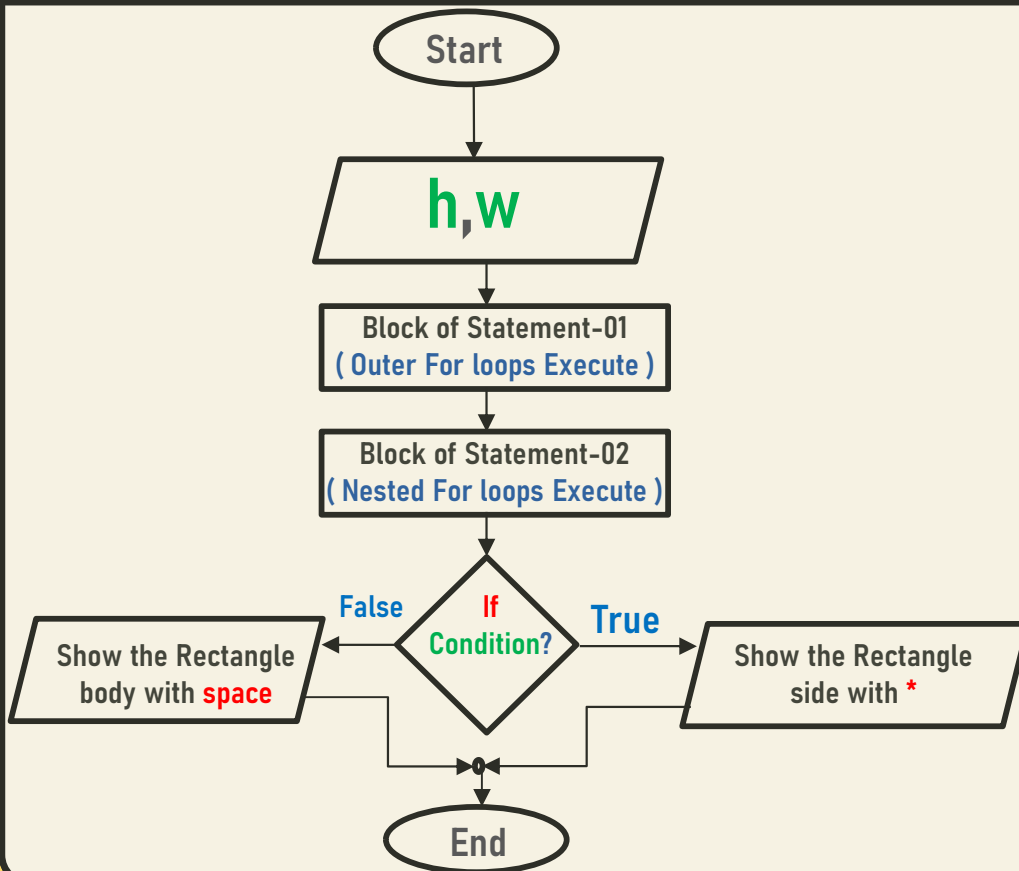
02

What is Rectangle?

A rectangle is a geometric shape with four sides and four right angles. It is characterized by having opposite sides that are equal in length.



Flow Chart



Algorithm

STEP - 01:

Start Program

STEP - 02:

Input height h and width w

STEP - 03:

The nested loops are created to iterate over each row and column of the rectangle. The outer loop controls the rows, while the inner loop controls the columns.

STEP - 04:

if-else condition to determine whether to print an asterisk (*) or a space ().

STEP - 05:

End Program

Code Explanation

```
1 #include <stdio.h>
2
3 int main() {
4     int w, h;
5
6     printf("Enter the width of the
7     rectangle: ");
8     scanf("%d", &w);
9     printf("Enter the height of the
10    rectangle: ");
11    scanf("%d", &h);
12
13    for (int i = 0; i < h; i++) {
14        for (int j = 0; j < w; j++) {
15            if (i == 0 || i == h-1 || j == 0 || j == w-1) {
16                printf("*");
17            } else {
18                printf(" ");
19            }
20        }
21        printf("\n");
22    }
23    return 0;
24 }
```

Header Files

Declare variables

Get input from User

Iteration - 5

$i == 0$

false

$i = 4$ (5th Row)

$i == h-1$

true

$j = 4$

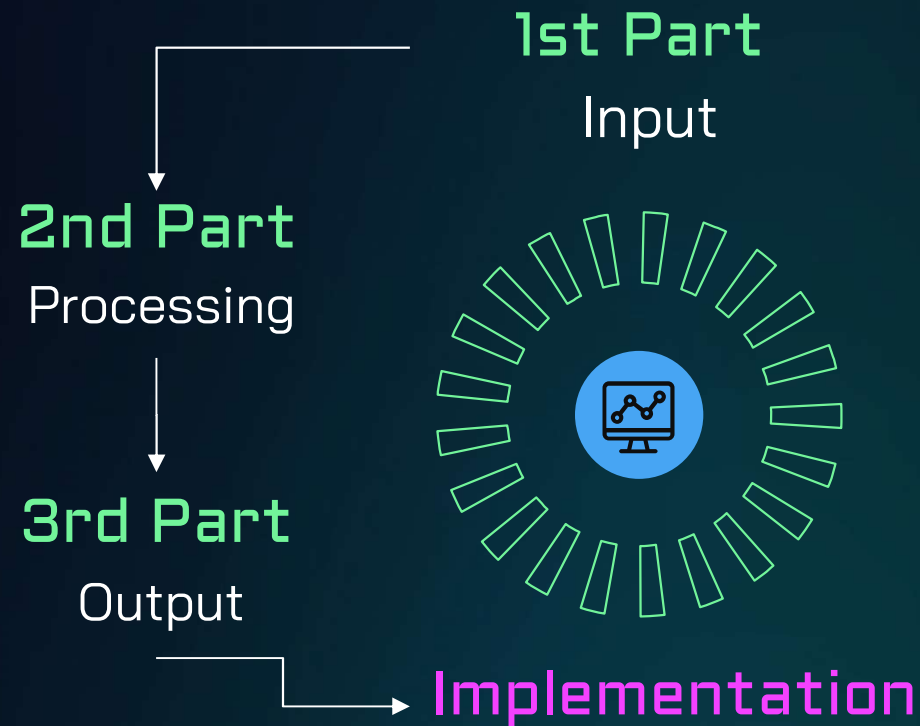
Condition

```
*****
*   *
*   *
*   *
*****
```

Return from the main function



Description of the project content

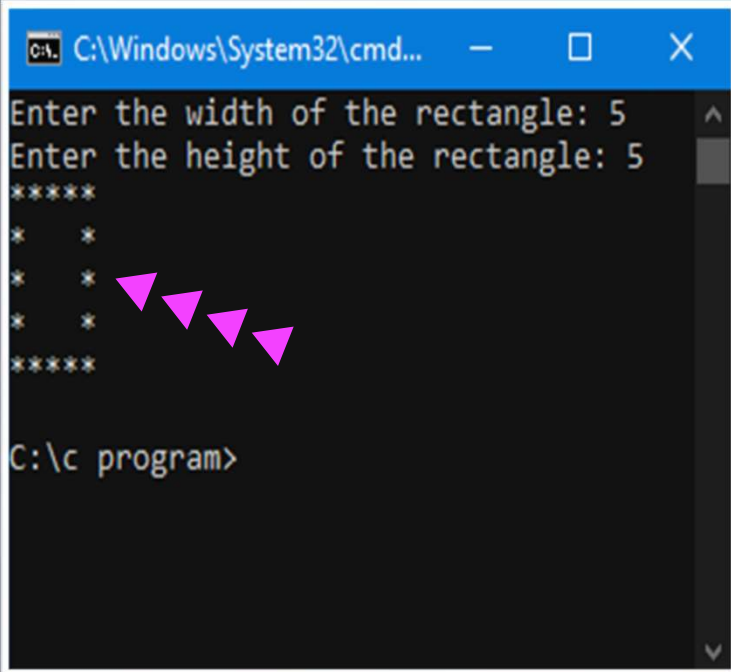


Rectangle Printing Program: Input Width and Height, Display Output

```
#include <stdio.h>
int main() {
    int w, h;
    printf("Enter the width of the rectangle: ");
    scanf("%d", &w);
    printf("Enter the height of the rectangle: ");
    scanf("%d", &h);
    for (int i = 0; i < h; i++) {
        for (int j = 0; j < w; j++) {
            if (i == 0 || i == h-1 || j == 0 || j == w-1) {
                printf("*");
            } else {
                printf(" ");
            }
        }
        printf("\n");
    }
    return 0;
}
```

Enter the width of the rectangle: **5**

Enter the height of the rectangle: **5**



```
C:\Windows\System32\cmd...
Enter the width of the rectangle: 5
Enter the height of the rectangle: 5
*****
*   *
*   *
*   *
*   *
*****

C:\c program>
```



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Thanks

Thanks to our honorable professor *Dr. Gour Chandra Paul*,
Team members, and presented all teams who enjoyed our
presentation attentively. If we get more chances, we will
develop ourselves to solve any program.

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